

# Work Order ID 65401

January 17, 2011 8:21:36 AM



Page 1

Item ID: D212-725-1-901

Accept



Setup Start



Revision ID:

Stop



Item Name: COLLECTIVE BELL CRANK ASSEMBLY

Start Date: 1/17/11 Start Qty: 20.00



Cust Item ID:

Required Date: 1/17/11 Req'd Qty: 20.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

Draw Nbr

Revision Nbr

D212-725-1

Rev G

100

0.00



Small Fab

Memo

0.00

Small Fab

SCRAP/DESTROY  
PARTS ARE OUT OF TOLERANCE

(as received from Eagle)

11/01/17

EAGLE TO BE INVOICED FOR PARTS

150

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

11-01-17

**L Lacelle**

**From:** Bill Beckett [bbeckett@dartaero.com]  
**Sent:** January 13, 2011 10:49 AM  
**To:** Bob Jennings; Angela Albert  
**Cc:** Zita Mulligan; llacelle@dartaero.com  
**Subject:** FW: BELL CRANK

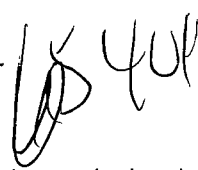
Hi guys,

Zita has suggested that DAS simply invoice Eagle for these parts. Dart will then physically destroy the parts and put them in the scrap bin here. I suppose Eagle would charge the costs to the Eagle Single R&D program.

Can you take of this SVP.

Thanks,  
 Bill

**From:** Zita Mulligan [mailto:zmulligan@eaglecopters.com]  
**Sent:** January 13, 2011 10:07 AM  
**To:** 'Bill Beckett'  
**Subject:** RE: BELL CRANK



I can't tell from the stream of emails who has burdened the costs to this point, and who should. Give me a call when you have a chance.

**From:** Bill Beckett [mailto:bbeckett@dartaero.com]  
**Sent:** Thursday, January 13, 2011 5:18 AM  
**To:** Zita Mulligan  
**Subject:** RE: BELL CRANK

Zita,

We need to sort this out. Or is this something you want to defer given potential upcoming changes?  
 Bill

**From:** Bill Beckett [mailto:bbeckett@dartaero.com]  
**Sent:** December 22, 2010 9:59 AM  
**To:** Angela Albert  
**Cc:** 'Bob Jennings'  
**Subject:** FW: BELL CRANK

Angie,

This is the issue I was referring to during our call this morning.

The total value of these parts at Dart is ~\$12K for Qty 20 partially completed D212-725-1-007.

Bill

**From:** Bill Beckett [mailto:bbeckett@dartaero.com]  
**Sent:** December 22, 2010 8:15 AM  
**To:** 'David Shepherd'; 'Murdoch, Jason'; Kelly Labas (klabas@eaglecopters.com)  
**Cc:** 'Eric Charbonneau'; 'Marc Bellavance'; 'L Lacelle'; 'Harvey Siemens'; 'Mike O'Reilly'; 'Dan Lemay'  
**Subject:** RE: BELL CRANK

David - I concur; this is not the place to be saving \$\$\$. Another sharp lesson in the evils of inventory.

1/14/11

Jason – please scrap these parts. I will review with Kelly how to deal with the costs.

KL – please send Dart a PO for the required P/N and quantity of new parts. I suggest a quantity of 4 to keep costs down a bit.

Bill

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**From:** David Shepherd [mailto:dshepherd@dartaero.com]

**Sent:** December 21, 2010 6:12 PM

**To:** 'Bill Beckett'

**Cc:** 'Eric Charbonneau'; 'Marc Bellavance'; 'L Lacelle'; Harvey Siemens; 'Mike O'Reilly'; Dan Lemay

**Subject:** FW: BELL CRANK

Bill,

First of all ... Don't shoot the messenger.

In an effort to get ahead, Tom McBride made 25 Collective Bellcranks (with a value of \$10000) for Eagle Single before we had an approved dwg and before we had an STC. These Bellcranks were made to the wrong material so in an effort to save them, Eagle had them heat treated for a price of about \$4000. I believe Dart has paid Eagle for these parts so that they could finish the assembly of the parts and supply to Eagle as a finished part for use on Eagle Single. Unfortunately, it turns out that one of the holes is too large to properly press fit in one of the bearings.

These parts have received considerable attention from both the FAA and EASA because of their criticality to safe operation of the helicopter. You lose the bellcrank and you lose control of the helicopter.

As Dan Lemay suggests below, we COULD make custom bushings that would allow us to properly install the bearings, but I'm not keen on getting caught doing this. If an Eagle Single were to go down because of this bellcrank and it had been discovered that we screwed around with the bushings, I don't think we'd be in a very good position. If the bellcrank is made correctly, it uses standard 205/212 bearings/bushings, which is all part of the buy-in from the authorities.

As discussed, my recommendation is that we scrap these (or at least quarantine them) and that we have Dart make new ones from scratch from the proper material with the proper dimensions. The parts are already programmed since Dart was unaware that Tom McBride had gone ahead and made 25 units.

Please confirm that you agree so that we can move forward and put this mess behind us.

David

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**From:** L Lacelle [mailto:llacelle@dartaero.com]

**Sent:** Tuesday, December 21, 2010 8:28 AM

**To:** 'David Shepherd'

**Cc:** 'Eric Charbonneau'; mbellavance@dartaero.com

**Subject:** RE: BELL CRANK

Anyone have an idea what we're doing with these? I'm pretty sure Eagle is going to ask when they are going to receive their P.O...

LL

1/14/11

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**From:** L Lacelle [mailto:llacelle@dartaero.com]  
**Sent:** December 15, 2010 7:29 AM  
**To:** 'Eric Charbonneau'; 'David Shepherd'; 'mbellavance@dartaero.com'  
**Subject:** RE: BELL CRANK

So, what have we decided?

LL

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**From:** Eric Charbonneau [mailto:echarbonneau@dartaero.com]  
**Sent:** December 7, 2010 4:02 PM  
**To:** David Shepherd; mbellavance@dartaero.com  
**Cc:** Linda Lacelle  
**Subject:** FW: BELL CRANK

Hi guys, a couple weeks back we started discussing the issue of the oversized bell crank holes... here are the recommendations made by Dan Lemay and his team, how should we proceed with these.

ERIC CHARBONNEAU  
Production Engineering Coordinator



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**From:** Dan Lemay [mailto:dlemay@eaglecopters.com]  
**Sent:** December 7, 2010 3:56 PM  
**To:** 'Eric Charbonneau'  
**Cc:** MMallon@eaglecopters.com  
**Subject:** BELL CRANK

Hi Eric,

Here are the results of the bearing. We applied 70 lbs of side load on the bearing with no movement. That should be sufficient for the application. Having said that, it is more difficult to install the bearing and the bushing because more care has to be taken to make sure the bushing and the bearing are centered. Also, the first time the bearing has to be replaced and someone measures the bore, they will realize it is out of limits.

Here is my suggestion. If Dart can produce a bushing that would fit properly in the bell crank (larger outside diameter) then the bell cranks can be saved. Once they have been depleted, you can produce more bell cranks to the correct size and use the standard bushings.

I hope that helps and I will send back the parts to you as soon as you let me know.

Regards,

Dan Lemay

1/14/11

Maintenance Manager

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